

**Abstract.** The purpose of this paper is to study the asymptotic behavior of the solutions of the Cauchy problem for the wave equation in the case of a variable speed of propagation. The asymptotic behavior of the solutions is studied in the case of a variable speed of propagation. The asymptotic behavior of the solutions is studied in the case of a variable speed of propagation.

a substrate having a cleavage plane;

a waveguide formed from a core on said substrate;

and

wherein a face of said incision line is set to a face different from the cleavage plane of said substrate.

one or more optical input waveguides arranged side  
by side;

an arrayed waveguide connected to an output end of said first slab waveguide and including a plurality of channel waveguides arranged side by side for transmitting light that has traveled through said first slab waveguide, said channel waveguides having different predetermined length;

a plurality of optical output waveguides arranged

side by side and connected to an output end of said second slab waveguide ;

wherein the incision line is a groove formed in a mode crossing at least said arrayed waveguide.

3. The optical waveguide circuit device according to claim 2, wherein a half-wave plate is inserted into the groove crossing said arrayed waveguide.

4. The core of the waveguide of the optical waveguide circuit device according to claim 1, which is a core of an arrayed waveguide grating type optical multiplexer/demultiplexer comprising:

one or more optical input waveguides arranged side by side;

a first slab waveguide connected to output ends of said optical input waveguides;

an arrayed waveguide connected to an output end of said first slab waveguide and including a plurality of channel waveguides arranged side by side for transmitting light that has traveled through said first slab waveguide, said channel waveguides having different predetermined length ;

a second slab waveguide connected to an output end of said arrayed waveguide; and

a plurality of optical output waveguides arranged side by side and connected to an output end of said second

**Box 9**

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a

e  
s  
a

a light transmission central wavelength of an arrayed waveguide grating type optical multiplexer/demultiplexer is shifted by a slide moving operation of said slide moving member depending on the temperature.